Lovelace Foundation
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During the 6 months between July 1, 1965 and December 31, 1965, the work has been mainly directed toward two main areas. The first concerns work on dynamic electrocardiography. For this study, data were obtained from pilots and non-pilot subjects. A complete system of heart rate count was designed and built. Research on proper type and use of electrodes was carried on in order to eliminate noise in the signal recorded on tape. All of this made the evaluation of data easier and increased their usefulness.

The statistical evaluation is pending. The other facets of this work are awaiting arrival of a piece of equipment which will facilitate accurate diagnosis of abnormalities by combining the scanner and charter electrocardiograph machines in one unit. All of this work was supervised by Dr. James Roman. The studies comprise the recording of more than 600 hours of ECG data on 120 tapes of which 75 have been analyzed for heart rate and interval measurement. Up to date 63 subjects including six X-15 pilots have been used for this project.

The second part of the program dealt with building up a medical laboratory capable of making determinations on different physiological parameters at rest and under physical stress, such as cardiac output, blood pressure, electrocardiographic data, pulse wave velocity, chemical and other determinations of inspired, expired, and alveolar gases. On completion of this lab, fat content and lean body mass determinations. lung volumes and capacities and peak flow capacity measurements among others, will be available. The proper connections and calibrations of the gas analysis apparatus and gas stored in tanks has been done, including a complete study of the Wright's spirometer for its use in flight determinations of gas volumes. A bicyclergometer and treadmill are working and being used by the pilots on a physical fitness program initiated by Dr. Roman with the construction of a gymnasium adjacent to the Stress Laboratory. The initiation of the proposed studies will have to wait for the construction of work bench and sinks, overhead supports and a recirculating mechanism to be used in the water immersion tank. Beside this, other miscellaneous work has been done; for examples, physical examination of pilot and NASA personnel, first aid medical indoctrination and medical attention of emergencies on the same, gathering and reading literature for the main two projects, instruction and training of the assistants on proper techniques for the handling and use of equipment.